Paper No. 12

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DANIEL M. MAKOWIECKI and ALAN F. JANKOWSKI

Appeal No. 2000-1041
Application No. 08/871,705

ON BRIEF

Before PAK, WALTZ, and LIEBERMAN, Administrative Patent Judges.
WALTZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the examiner's refusal to allow claims 10 through 12, 14, 15, 17, and 19 through 22, as amended subsequent to the final rejection (see the amendment dated May 17, 1999, Paper No. 7, entered as per the Advisory Action dated May 27, 1999, Paper No. 8). Claims 10-12, 14, 15, 17 and 19-22 are the only claims remaining in this application. We have jurisdiction pursuant to 35 U.S.C. § 134.

According to appellants, the invention is directed to a method for increasing the hardness of a metal by depositing at least one layer of boron on a metal surface by rf magnetron sputtering while

maintaining the metal surface at a temperature not greater than about room temperature during deposition (Brief, page 3).

Illustrative independent claim 10 is reproduced below:

10. A method for increasing the hardness of a metal comprising:

depositing at least one layer of boron having a microhardness value in the range of about 2900 Kgm/mmz to about 4300 Kgm/mm2 on a metal surface by rf magnetron sputtering, and

maintaining the metal surface at a temperature not greater than about room temperature during the depositing of the at least one layer of boron thereon.

The examiner relies upon the following references as evidence of obviousness:

Keem et al. (Keem)	4,724,169	Feb. 09, 1988
Ovshinsky et al. (Ovshinsky)	4,727,000	Feb. 23, 1988
Nakamori (published Japanese Unexamined Patent Application)	63-185033	July 30, 1988
Fujita et al. (Fujita) (published Japanese Unexamined Patent Application)[1]	64-081904	Mar. 28, 1989

The claims on appeal stand rejected under 35 U.S.C. § 103(a) as unpatentable over Ovshinsky in view of Keem and Nakamori or

[1]We rely upon full English translations of the Nakamori and Fujita documents. These translations are of record.

Fujita (Answer, page 3).[2] We *reverse* this rejection for reasons stated in the Brief and the reasons set forth below.

OPINION

The examiner finds that Ovshinsky teaches X-ray dispersive and reflective structures (Answer, page 3). The examiner recognizes that Ovshinsky fails to disclose or suggest many limitations of the claimed subject matter (see the listing on page 5 of the Answer).[3] Accordingly, the examiner applies Keem for the teachings of thickness, temperatures, and rf and dc magnetron sputtering methods (Answer, page 9).[4]

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[2]The examiner incorrectly lists cancelled claim 18 in the statement of the rejection on page 3 of the Answer.

[3]Although the examiner lists each difference between Ovshinsky and the claims as "Ovshinsky et al. do not teach...," the examiner appears to mistakenly list one limitation where Ovshinsky et al. "do teach" the sputtering at room temperature. Since the examiner applies Keem (Answer, page 7) and Nakamori (Answer, page 8) as evidence of sputtering at room temperature, we assume the examiner meant Ovshinsky does *not* teach sputtering at room temperature. We do note that Ovshinsky teaches depositing hafnium and silicon by magnetron sputtering at room temperature (col. 25, ll. 1-2 and 34-36). However, this limitation does not affect our decision in this appeal and is therefore moot.

[4]A discussion of Nakamori and Fujita is unnecessary to this decision as the examiner only applies these references for their teachings of high frequency power (Answer, page 9). Accordingly, these references do not remedy the deficiencies discussed *infra.*

The examiner finds that Keem teaches "protective coatings [which] comprise a plurality of superimposed multilayer units." Answer, page 5. However, the examiner has failed to provide any evidence of a reason, suggestion or motivation for combining Ovshinsky and Keem as proposed. *See In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). Ovshinsky and Keem, even by the examiner's own findings, are directed to unrelated subject matter. The examiner states that the "motivation for depositing a multilayer coating at room temperature by utilizing particular thicknesses and rf and dc magnetron sputtering is that it allows for production of protective coatings" (Answer, page 7). This is merely a restatement of the desire and objectives of Keem. The examiner has failed to explain or show why one of ordinary skill in the art would have used the disclosure and teachings of Keem in the X-ray dispersive and reflective structures of Ovshinsky.

The examiner also concludes that the combination of Ovshinsky and Keem is obvious because "it is desired to form a film with low deterioration properties" (Answer, page 9). However, the examiner has failed to point out where Ovshinsky teaches that such a "low deterioration" film is desired and why the protective film of Keem

would have been expected to function as a low deterioration film in the structure of Ovshinsky. *See Dembiczak, supra.*

Finally, we note that claim 10 on appeal requires a certain microhardness value. As correctly argued by appellants (Brief, pages 5-6), this limitation is not disclosed or taught by any cited reference. In the restatement of the rejection, the examiner only finds that Ovshinsky does not teach the microhardness value (Answer, page 5). In the "Response to Argument" on page 10 of the Answer, the examiner argues that since the combination of references teach the same sputtering conditions, the microhardness feature would be produced. However, the examiner has failed to show that the various sputtering conditions taught by the references would have *necessarily* produced the microhardness values recited in claim 10 on appeal. *See In re Robertson,* 167 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).

For the foregoing reasons, we determine that the examiner has failed to establish a *prima facie* case of obviousness in view of the reference evidence. Accordingly, the examiner's rejection is reversed.

The decision of the examiner is reversed.

REVERSED

CHUNG K. PAK Administrative Patent Judge	)	
THOMAS A. WALTZ Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
PAUL LIEBERMAN Administrative Patent Judge	)	

TAW/jrg

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